





## **RB52**

Voltage: 12.8V | Capacity: 52 Ah | Energy: 665 Wh

LITHIUM IRON PHOSPHATE BATTERY LIFEPO4

ELECTRICAL SPECIFICATIONS		
Nominal Voltage	12.8 V	
Nominal Capacity	52 Ah	
Capacity @ 25A	120 min	
Resistance	≤50 mΩ @ 50% SOC	
Efficiency	99%	
Self Discharge	<3% per Month	
Maximum Modules in Series	4	

DISCHARGE SPECIFICATIONS		
Maximum Continuous Discharge Current	50 A	
Peak Discharge Current	100 A (7.5 s ±2.5 s)	
BMS Discharge Current Cut-Off	170 A ±20 A (10 ±5 ms)	
Recommended Low Voltage Disconnect	11 V	
BMS Discharge Voltage Cut-Off	8 V (2.0 ±0.08 vpc) (140 ±60 ms)	
Reconnect Voltage	9.2 V (2.3 ±0.1 vpc)	
Short Circuit Protection	200-600 μs	

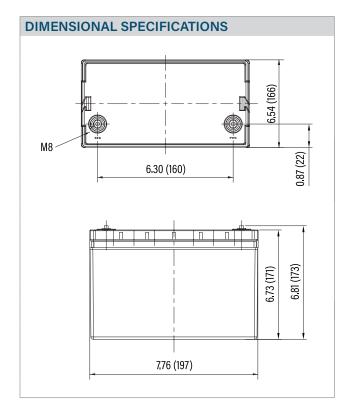
TEMPERATURE SPECIFICATIONS		
Discharge Temperature	-4 to 140 °F (-20 to 60 °C)	
Charge Temperature*	-4 to 113 °F (-20 to 45 °C)	
Storage Temperature	23 to 95 °F (-5 to 35 °C)	
BMS High Temperature Cut-Off	176 °F (80 °C)	
Reconnect Temperature	122 °F (50 °C)	

<sup>\*</sup>Refer to charge currents below 32°F (0°C)

MECHANICAL SPECIFICATIONS		
Dimensions (L x W x H)	7.8 x 6.5 x 6.8" 197 x 166 x 173 mm	
Weight	13.7 lbs (6.2 kg)	
Terminal Type	M8 x 1.25 x 12mm	
Terminal Torque	80 - 100 in-lbs (9 - 11 N-m)	
Case Material	ABS	
Enclosure Protection	IP66	
Cell Type - Chemistry	Cylindrical - LiFePO <sub>4</sub>	

CHARGE SPECIFICATIONS		
Recommended Charge Current	2.5 A - 25 A	
Maximum Charge Current	50 A	
Charge Current 14 to 32 °F (-10 to 0 °C)	≤0.1 C	
Charge Current -4 to 14 °F (-20 to -10 °C)	≤0.05 C	
Recommended Charge Voltage	14.2 V - 14.6 V	
BMS Charge Voltage Cut-Off	15.6 V (3.9 ±0.025 vpc) (1.1 ±0.4 s)	
Reconnect Voltage	15.2 V (3.8 ±0.05 vpc)	
Balancing Voltage	14.4 V (3.6 ±0.025 vpc)	

COMPLIANCE SPECIFICATIONS	
Certifications	UN38.3 (battery) CE (battery) UL1642 & IEC62133 (cells)
Shipping Classification	UN 3480, CLASS 9









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## PERFORMANCE CHARACTERISTICS DISCHARGE VOLTAGE CHARACTERISTICS at VARIOUS RATES DISCHARGE VOLTAGE CHARACTERISTICS at VARIOUS TEMPERATURES DISCHARGE 1C 25·C (77°F) 145 14.0 14.0 13.5 13.5 13.0 13.0 12.5 12.5 12.0 12.0 11.5 11.5 11.0 11.0 10.5 10.5 10.0 10.0 — 60°C (140°F) — 25°C (77°F) 45°C (113°F) 10°C (50°F) -0.2C -0.5C -1C — 25°C (77°F) — 0°C (32°F) 9.0 9.0 8.5 8.5 -20°C (-4°F) 8.0 8.0 40% 60% 80% 100% 120% 60% 100% 120% Capacity Capacity CHARGE VOLTAGE CHARACTERISTICS at VARIOUS TEMPERATURES CHARGE VOLTAGE and STATE OF CHARGE (SOC) CHARGE 0.2C CHARGE 0.2C @ 25°C (77°F) 15.0 140% 14.5 14.0 130% 120% 14.5 14.0 13.5 110% 13.5 13.0 12.5 13.0 100% 12.5 90% 30S 12.0 12.0 80% 11.5 11.0 11.5 11.0 70% 60% 10.5 50% 10.0 9.5 10.0 40% 30% 9.5 —45°C (113°F) —25°C (77°F) — 5°C (41°F) 9.0 20% ─Voltage ─State of Charge 8.5 8.0 8.5 10% 8.0 0% 0% 20% 40% 60% 80% 100% 120% 50 100 150 200 250 300 350 State of Charge Time (Minutes) CYCLE LIFE vs. DEPTH OF DISCHARGE (DOD) CAPACITY of RELION LIFePO4 vs. LEAD ACID DISCHARGE 0.5C/CHARGE 0.5C @ 25°C (77°F) at VARIOUS RATES OF DISCHARGE 100% 140 130 95% 120 90% 110 85% Remaining Capacity %08 72% 65% 65% 100 Capacity (Ah) 90 80 70 60 -RELION LIFePO4 - GROUP 31 65% -FLA - GROUP 31 60% -50% DOD 40 -AGM - GROUP 31 -80% DOD 55% 30 -GEL - GROUP 31 -100% DOD 50% 20 6000 Cycles 12000 14000 10 40 Rate (A)









